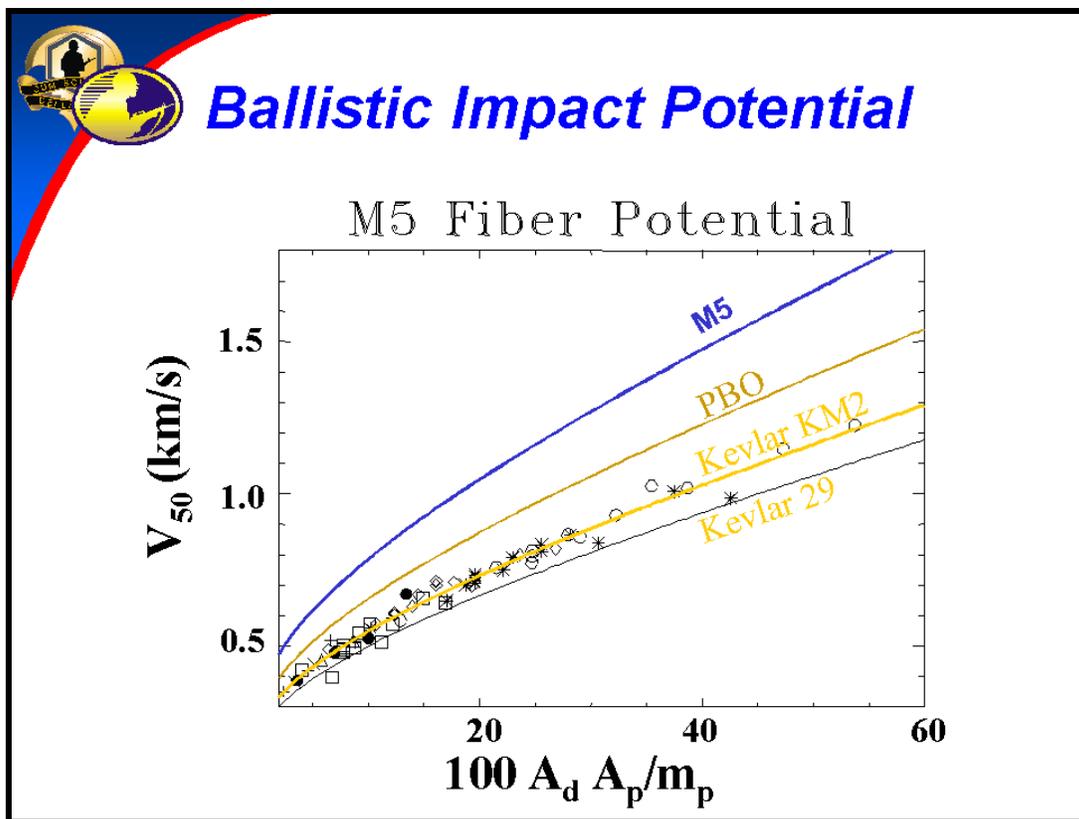


**MAGELLAN Systems International, LLC**  
**Testimony to House Armed Services Committee's**  
**Subcommittees on Tactical Air and Land Forces and**  
**Projection Forces**  
**June 29, 2005**

MAGELLAN'S M5® fiber, the strongest, most flame resistant synthetic fiber ever created, is now emerging from the R&D stage and shows great promise as a breakthrough solution to reduce battlefield casualties as a component of a new generation of armor systems. A 2003 report by the US Army stated that ***"M5 fiber is a new ultra high performance fiber with extraordinary potential for use in armor systems for personnel and vehicles, flame and thermal protection, as well as high performance textile composites. Advanced manufacturing techniques that allow for the affordable production of this fiber are a critical requirement for the future warrior system."*** The Army has estimated that M5® may enable a weight reduction of up to 40% in body armor systems while providing protection superior to that available with today's materials.

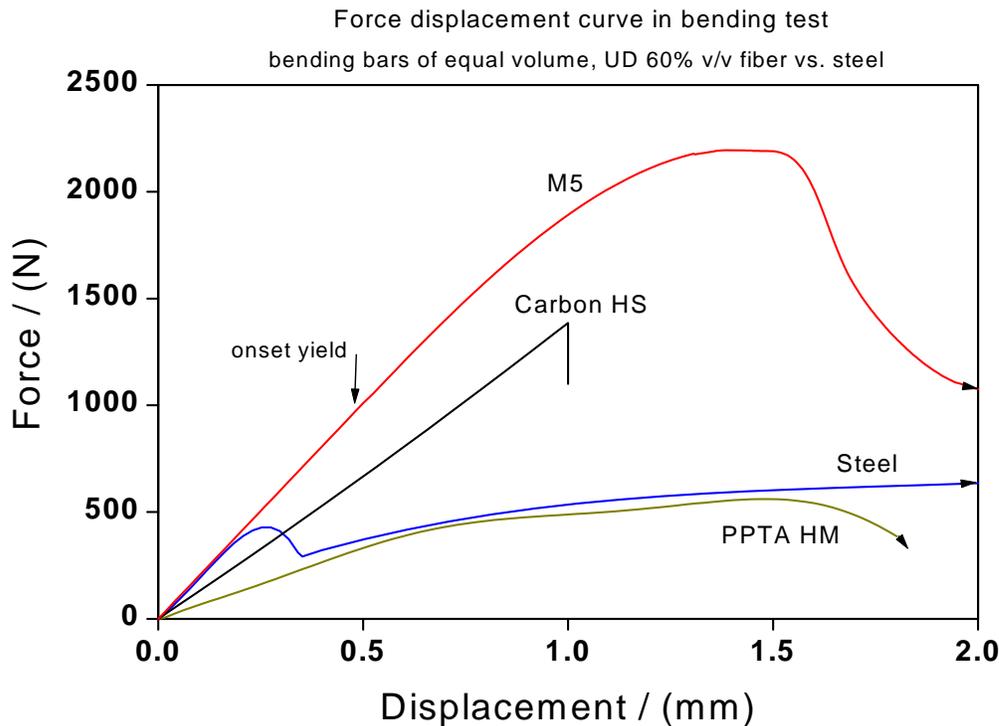


**US Army Testing Shows M5®'s Potential Ballistic Protection Can Exceed Today's Fibers**

(Chart courtesy of US Army Natick Soldier Center Ballistics Team)

M5® is the world's only fiber with hydrogen bond formation between rigid molecular chains. This three-dimensional honeycomb structure provides M5® with its completely unique combination of properties:

- Extreme Strength
  - Tenacity (GPa): 5.3-7.1 [Goal = 9.5]
  - Modulus (GPa): 350-430 [Goal = 400-450]
  - Compression (GPa): 1.6 [Goal = 2.0]
- Extreme Fire & Heat Resistance
  - Does not burn
  - Onset of thermal degradation: 530°C
- Additional Properties
  - Ductile failure mode (Plastic deformation & high residual strength under loads exceeding yield strength)
  - Outstanding adherence to resins
  - UV light resistant
  - Non-conductive (Stealth)
  - Light weight



**In Addition to it's Extreme Strength, M5® Exhibits Non-Brittle Behavior in Composites**

M5® was developed in the 1990's by a large European company, Akzo Nobel. Five years ago, MAGELLAN, a US small business, learned that Akzo was seeking to divest its fiber business to fund a move into pharmaceuticals. Shortly before selling its fiber division to a Japanese company, Akzo separately sold the M5® technology to MAGELLAN. MAGELLAN bought the M5® patents and laboratory, hired the inventor, and with support from the US Army's Natick Soldier Center, MAGELLAN reestablished the M5® lab in Richmond, VA. MAGELLAN then partnered with DuPont Corporation to build a small scale (20-60 tons/year) pilot plant, also in Richmond, VA, which is now the world's state-of-the-art experimental fiber facility. Here MAGELLAN is working out the details of manufacturing M5® fiber in preparation for a future commercial scale plant.

MAGELLAN also continues to work with DuPont to develop a new generation of soft and hard body armor, helmets, SAPI plate material, and other life protection applications for war fighters and first responders. MAGELLAN and DuPont are now working together to combine M5® with DuPont's existing technologies to develop revolutionary new lightweight armor systems that will protect against a wide range of threats including small arms rounds, fragmentation, fire, as well as chemical and biological agents. Future applications for M5® will include fire fighter turnout coats, high performance ropes and tethers, and light weight composite materials such as aircraft wings and air frames.

In April, 2005, the Committee on High-Performance Structural Fibers for Advanced Polymer Matrix Composites, National Materials Advisory Board of the National Research Council, provided the following statements in the summary to its report –

***“M5 has the potential to meet the future structural and ballistic needs of the Army;” “M5 could be an enabling technology for a new generation of soldier protection systems;” “In the near term, DOD should provide significant funding to purchase M5 fiber and rapidly evaluate its properties and applications.”***

MAGELLAN appreciates the previous support for M5® provided by the US Congress and the US Army in providing R&D funds for M5® fiber development. In the 2007 appropriation cycle, MAGELLAN intends to request additional Congressional support under the Defense Production Act Title III Program for the creation of a commercial scale M5® facility. We believe that this program, established by Congress to create domestic production capabilities for essential military technologies, is the ideal tool to field this next generation of multi-threat war fighter protection as quickly as possible. We look forward to continuing to work with both Members and staff of this committee who have been an important element in our progress. Without such support, it may be years before M5® is available to our soldiers and first line responders. MAGELLAN hopes each of you will support this exciting new defense technology.